PRD 091 018 622

ENGINEERING, ARCHITECTURAL AND PLANNING CONSULTANTS

LEBRON
ASSOCIATES

IMPROVEMENTS TO
EXISTING CONTAINER STORAGE AREA
PROTECO, INC.

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PROTECO, INC.

A. INTRODUCTION

Protección Técnica Ecológica, Inc. (PROTECO) has been operating a hazardous waste treatment, storage and disposal (TSD) facility in Peñuelas, Puerto Rico. As part of its TSD facilities, there is an area utilized for storage of hazardous wastes in containers which is the only unit of the facility that remains receiving off-site hazardous wastes. Because of the need of having this containers storage area (CSA) in compliance with applicable regulatory standards, PROTECO wants to perform improvements to this area as expeditiously as possible. Each of these improvements is addressed below:

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B. OBJECTIVES

The improvements to be performed at the existing CSA will accomplish the following objectives:

1. Provide adequate capacity for container storage and segregation of incompatible wastes.
2. Provide adequate aisle space.
3. Provide enough containment volume for spill control and confinement.
4. Provide adequate run-off, run-on and fire protection controls.
5. Provide a well-compacted soil base in the area to avoid releases of contaminants to subsoil.
6. Achieve compliance with all standards related with hazardous waste container storage facilities under interim status (addressed in 40 CFR Part 265 and Section VIII of the Regulation for the Control of Solid Hazardous and Non-Hazardous Wastes of the Puerto Rico Environmental Quality Board).

C. DESCRIPTION OF EXISTING CSA

The existing CSA at PROTECO facilities is illustrated on Figure 1. It is composed of two (2) roof areas under which waste containers are located and an open space area. Aisle space is available at areas in which containers are stored.

Provisions have been already made at the area for run-on control, adequate ignitables storage and fire prevention, and storage of spill control equipment. Fire extinguishers and No Smoking signs are available at the areas in which ignitable wastes are stored as well as protection of all waste containers from direct sunlight and climatic conditions. Also, eye washing facilities and air horns are available for emergency response at the area.

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D. DESCRIPTION OF THE PROPOSED ACTION

1. Existing Roof Areas (2)

The work to be performed at these areas will basically include soil compaction, dike construction, and movement of waste containers to achieve an adequate aisle space (3 ft.) between them. Soil will be compacted to achieve a nearly impervious barrier for spills (permeability measures will be made after compaction by taking and analyzing Shelby Tube samples) as in all areas of the CSA. Dikes will be constructed and containers will be arranged in the pattern described in Figures 2 and 3. In this way, the two (2) existing roof areas can be effectively utilized for storage, providing a containment

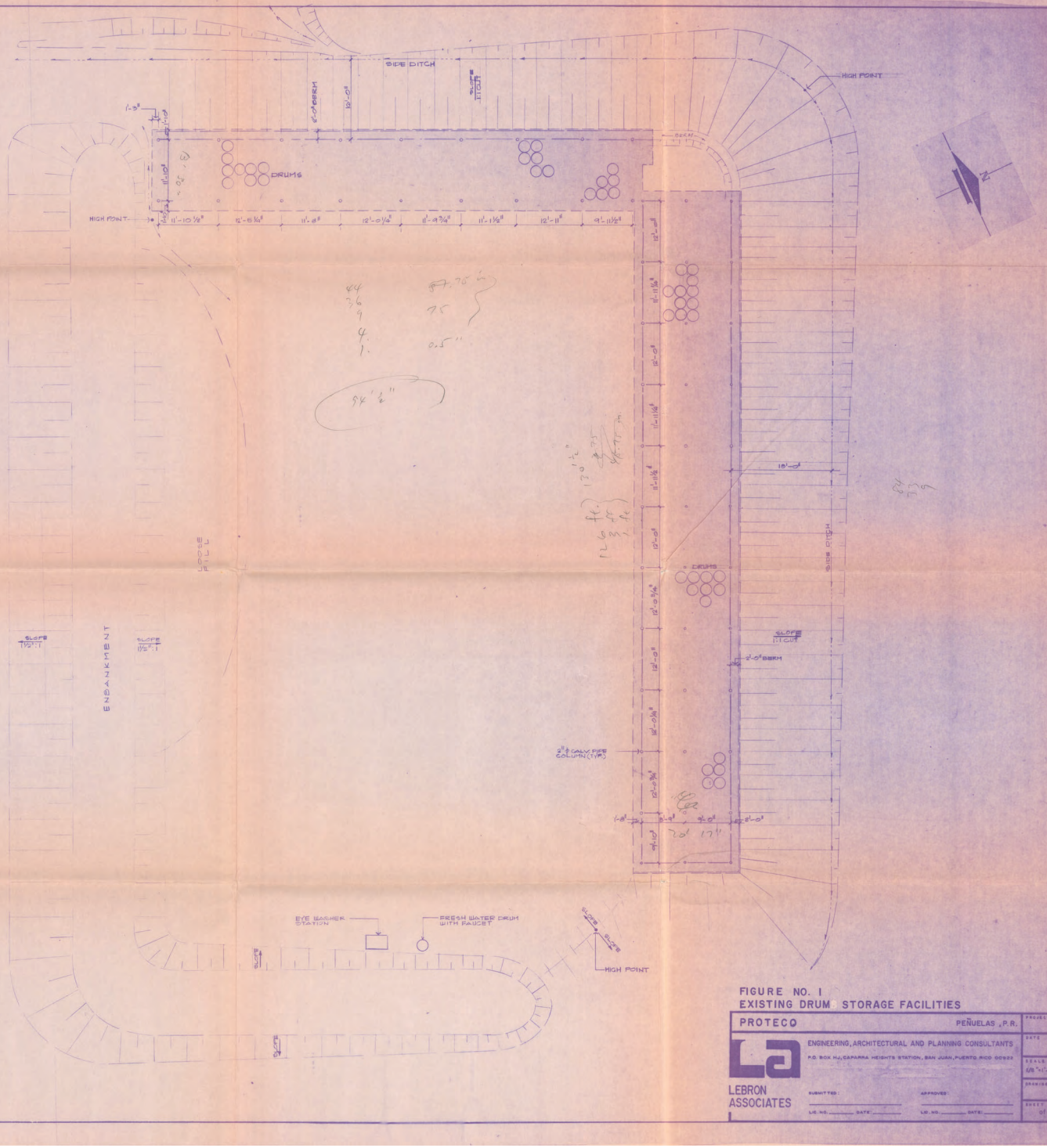

FIGURE NO. 1
EXISTING DRUM STORAGE FACILITIES

PROTECO — PEÑUELAS, P.R.

LEBRON ASSOCIATES — ENGINEERING, ARCHITECTURAL AND PLANNING CONSULTANTS
P.O. BOX 14, CAPARRA HEIGHTS STATION, SAN JUAN, PUERTO RICO 00922

PROJECT NO.
DATE
SCALE: 1/8"=1'-0"
DRAWING NO.
SHEET NO. 01

SUBMITTED: L.G. NO. _____ DATE: _____
APPROVED: L.G. NO. _____ DATE: _____

volume for spills greater than 10% of the stored waste volume.

Ignitables storage will continue in the roof area located at the southeast portion of the CSA (nearest to the CSA entrance). The area will provide for the storage of approximately 300 drums in a single-stacked fashion according to NFPA regulations. Extinguishers will be taken outside of this area (see Section D(3)) in order to have extinguishers available for fire control (extinguishers are currently located in the roof area). The area will be completely surrounded by dikes for spill control and segregation from next nearest area, as shown in Figure 2. The area will store a variety of ignitable and compatible wastes such as halogenated and non-halogenated solvents and oils.

The other existing roof area (located at the southwest portion of the CSA) will be utilized for the storage of toxics. Drums will be doubled-stacked in this area according to the arrangement described in Figure 3. Wastes to be stored in this area include metallic wastes such as electroplating sludges and mercury. A total of approximately 160 drums can be stored in this area.

2. New Roof Area

A new roof area will be constructed at the south portion of the CSA for the storage of corrosives, as shown in Figures 4 and 7. This area will be exactly equal in dimensions as the one utilized for ignitables

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FIGURE

PROJECT NO. 2

PROJECT : PROTECO

CLIENT :

SUBJECT : Upgrading CSA - Iguitables bay (N.T.S.)

of

BY J. Medero DATE: 7/10/86

RV ~~CHKD~~. J. Medero DATE: 7/17/86
9/18/86

11/7

18'ft

EXISTING ROOF POSTS

6" DICE (to be constructed)

A

A

EXISTING 2' DICE

3ft

3ft

Earth Ramp Detail (N.T.S.)

6in

3ft

3ft

entrance ramp (^) to be constructed

4'X4' wood pallets (for single-stacked drums)

8ft

total no. of pallets =
10(3) + 2
+ 15(3) = 77

∴ total capacity @ 4 drums/pallet
= 77(4) = 308

Section A-A

U

EXISTING AREA FOR SPILL CONTROL EQUIPMENT STORAGE

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FIGURE
~~PROJECT~~ NO. 3

PROJECT : PROTECO

CLIENT :

SUBJECT : Upgrading CSA -toxics bay- (N.T.S.)

BY J. Medero DATE: 7/10/86

RV ~~CHKD~~. J. Medero DATE: 7/17/86

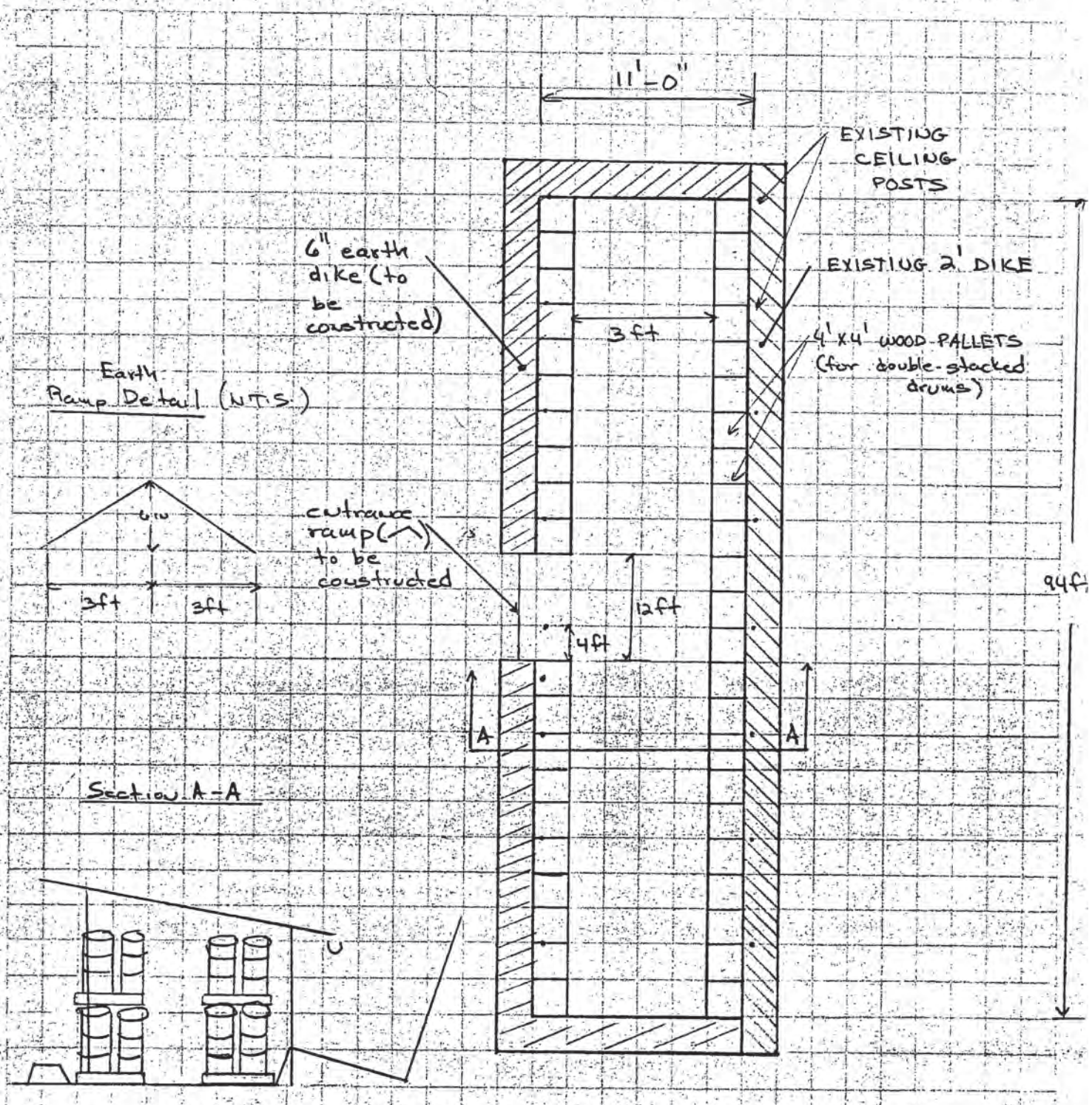

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FIGURE
~~PROJECT~~ NO. 4

PROJECT : PROTECO

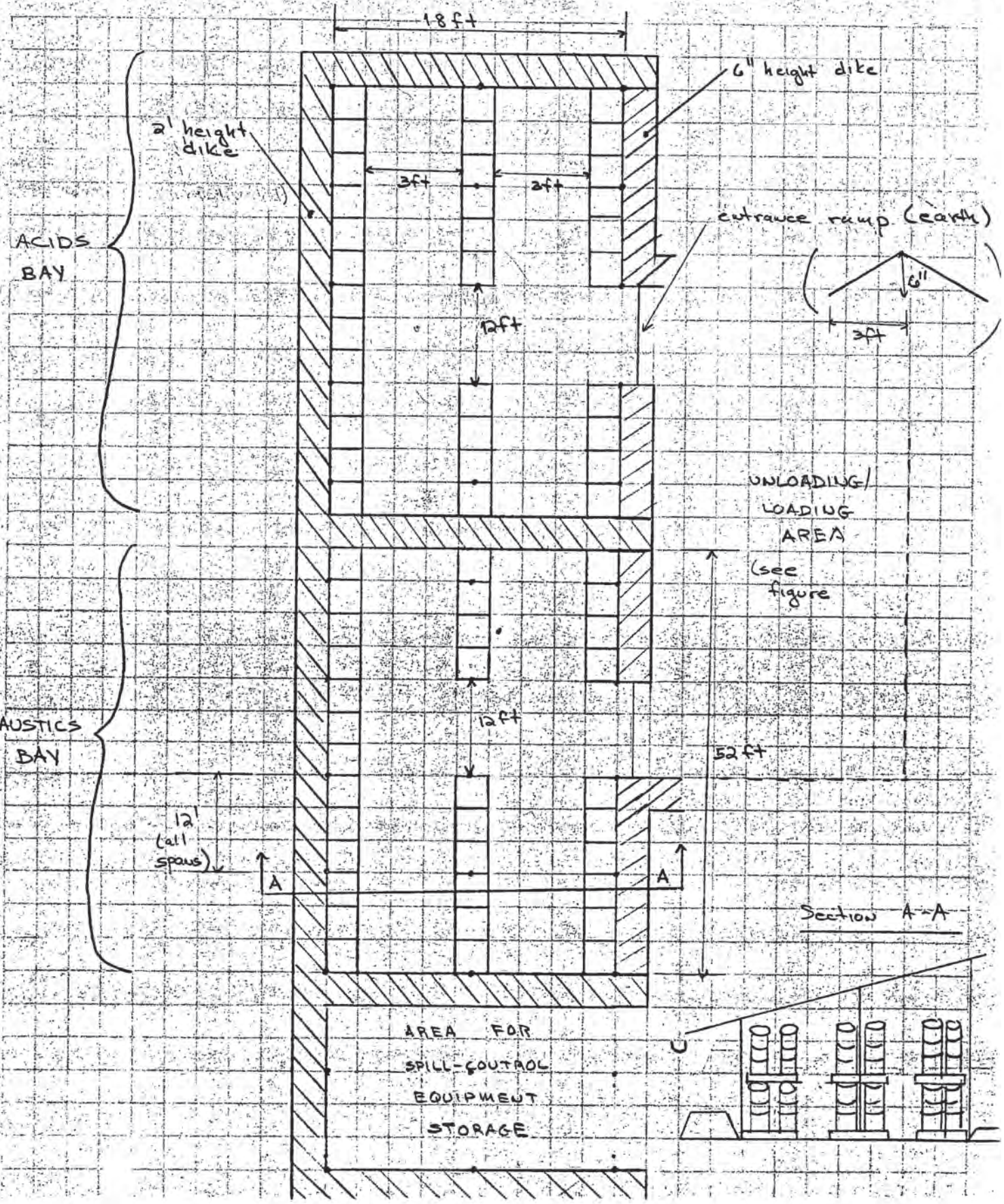
CLIENT :

SUBJECT : Upgrading CSA - corrosives bay (N.T.S.)

BY J. Medero DATE: 7/18/86

CHKD. DATE:

of



and it will provide for storage and segregation of acidic and caustic wastes in drums in a double-stacked pattern. Capacity will be provided for a total of approximately 260 drums.

An earth embankment will be constructed in this area before roof construction in order to provide for run-on control. As in the existing roof areas, spill containment volume will be provided for a volume greater than 10% of the stored wastes. Dikes will be provided for spill control and a two (2) feet berm will be provided for segregation of acids and caustics.

3. Additional Provisions at CSA

A loading dock will be provided at the east side of the new roof area of the CSA. The area will be constructed by providing concrete retaining walls and is detailed in Figure 5. Only corrosive wastes will be handled at this area that will provide for spill control and containment. No more than 60 drums will be present at the area during operations. The construction of this dock will allow the proper unloading/loading of drums from platform trucks and loading tankers or vacuum trucks for bulk transport of wastes decanted from drums.

Containers from ignitables and toxics bays will be decanted, if necessary, at a concrete area outside from roof areas, as shown in Figure 6 and 7. Grounding for ignitables will be provided to this area as well as dikes

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FIGURE
~~PROJECT~~ NO. 5

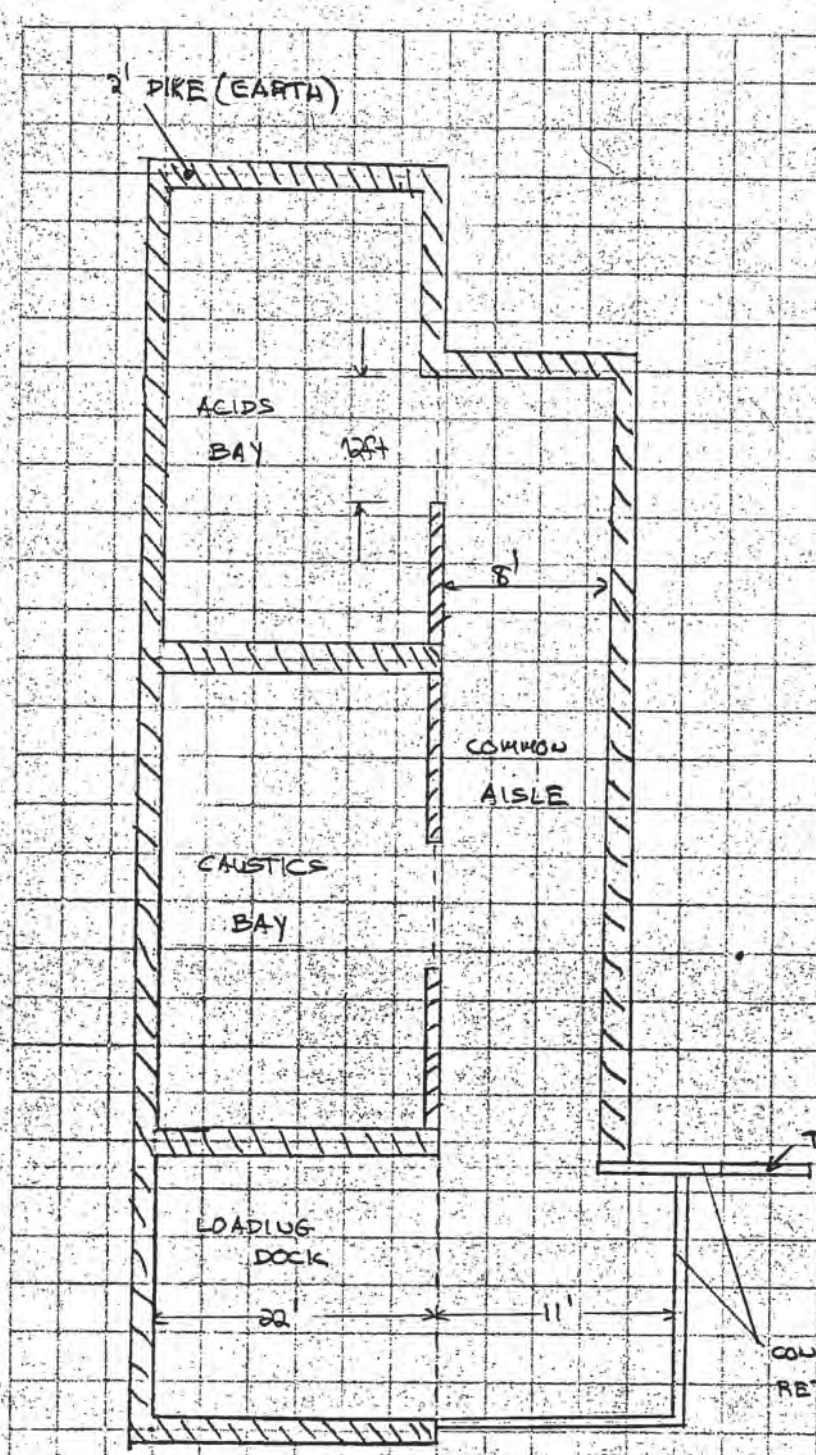
PROJECT : PROTECO

CLIENT :

SUBJECT : Upgrading CSA - corrosives bay discharge area (loading dock) - N.T.S.

BY J. Medero DATE: 8/1/86

RVD. ~~CHKD~~. R. Purcell DATE: 9/17/86



Note:
see figure 7 for sections and details

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FIGURE 6

PROJECT NO. 6

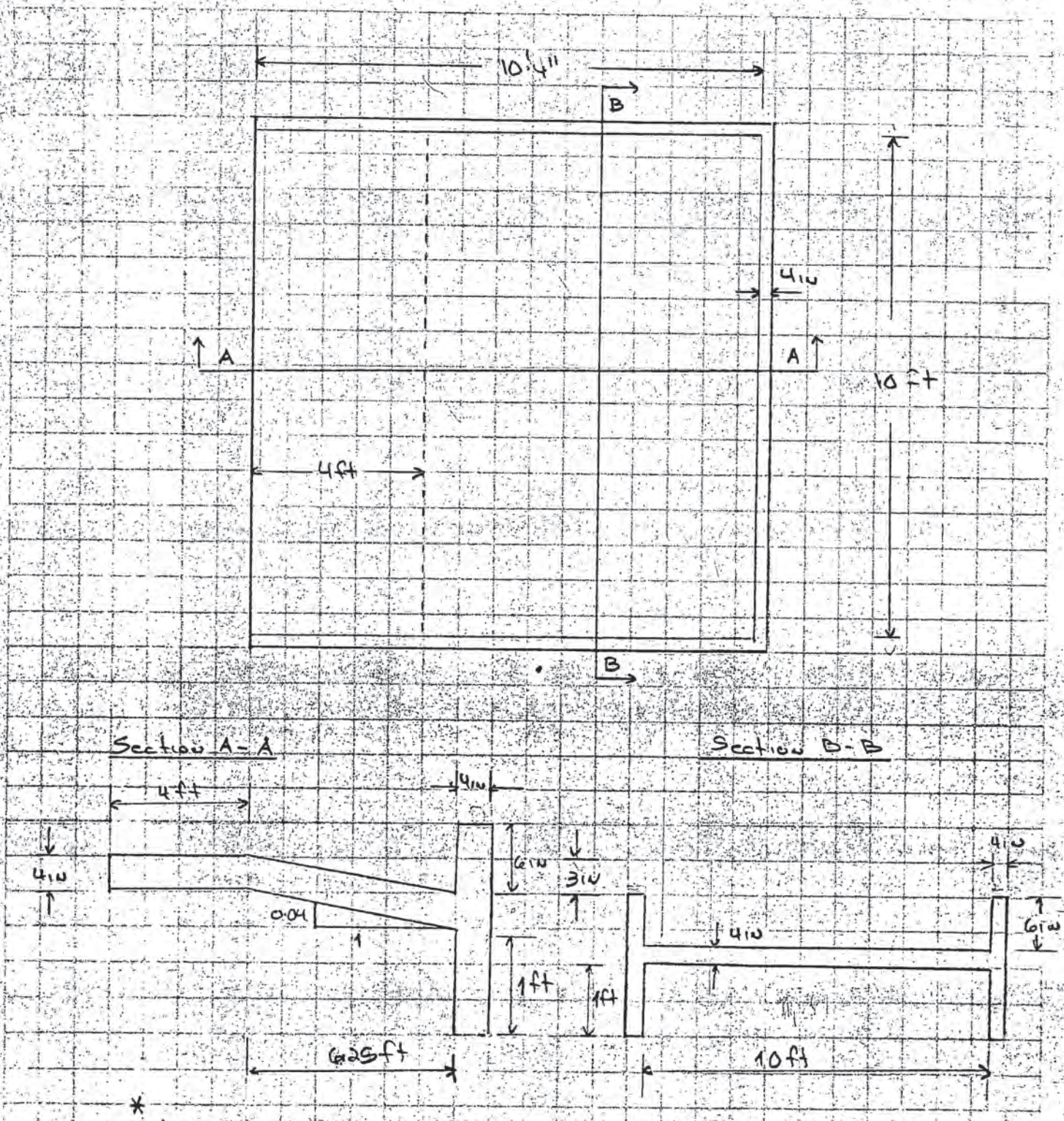
PROJECT : PROTECO

CLIENT :

SUBJECT : Upgrading CSA - drum decanting area (N.T.S.)

BY J. Madera DATE: 8/2/86

CHKD. DATE:



* Note:

See Figure 7 for details of grounding system

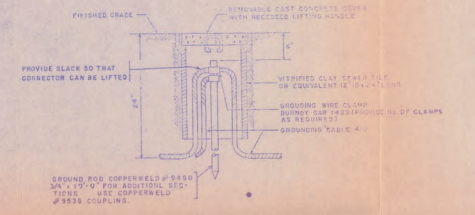
for spill control. No more than four (4) drums at a time will be decanted at this area, the drums being of the same waste type.

The remaining open space areas of the CSA will be utilized for storage of hazardous waste solids in box containers. These self-contained units do not require provisions for run-on/run-off control and, therefore, can be utilized effectively on those areas. Also, these open areas will be utilized for storage of non hazardous wastes in drums.

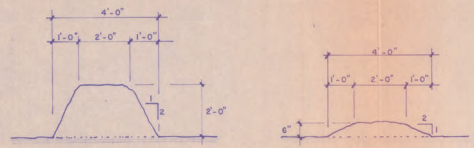
A fire control equipment plan will be developed for the CSA by a professional fire protection engineer. This plan may include, among others, additional provisions for grounding of ignitable waste containers, relocation of existing fire extinguishers, etc.

As described previously, provisions will be made for containment of waste spills taking into account 10% of the stored wastes. This is described in Appendix 1.

A plot plan for the improvements of the CSA is presented in Figure 7.

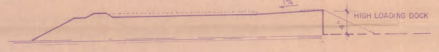


DETAIL 1
N.T.S.



SECTION 1
N.T.S.

SECTION 2
N.T.S.



SECTION 3
N.T.S.

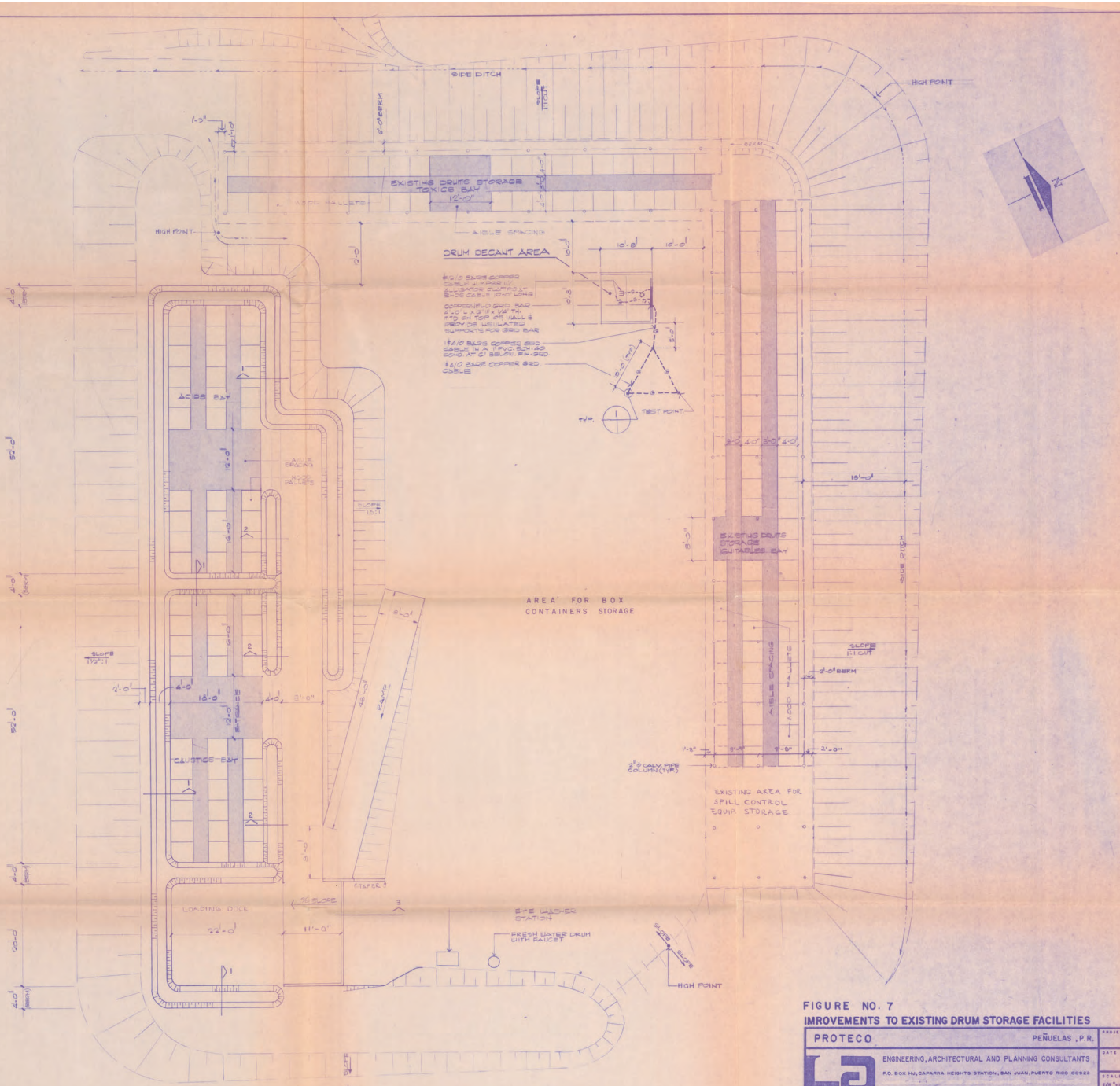


FIGURE NO. 7
IMROVEMENTS TO EXISTING DRUM STORAGE FACILITIES

PROTECO	PEÑUELAS, P.R.	PROJECT NO.
LEBRON ASSOCIATES	ENGINEERING, ARCHITECTURAL AND PLANNING CONSULTANTS P.O. BOX HJ, CAPARRA HEIGHTS STATION, SAN JUAN, PUERTO RICO 00923	DATE
		SCALE 1/8"=1'-0"
	SUBMITTED: LIC. NO. ____ DATE: ____ APPROVED: LIC. NO. ____ DATE: ____	DRAWING NO.
		SHEET NO. of

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APPENDIX 1

COMPUTATION OF REQUIRED CONTAINMENT VOLUME CAPACITIES

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PROJECT NO. _____ of _____

PROJECT : PROTECO

CLIENT : _____

SUBJECT : Upgrading CSA - equitables bay

BY J. Medero DATE: 7/10/86

RUD CHKD. J. Medero DATE: 7/17/86 9/18/86

computation of req'd containment volume (single-stacked drums)

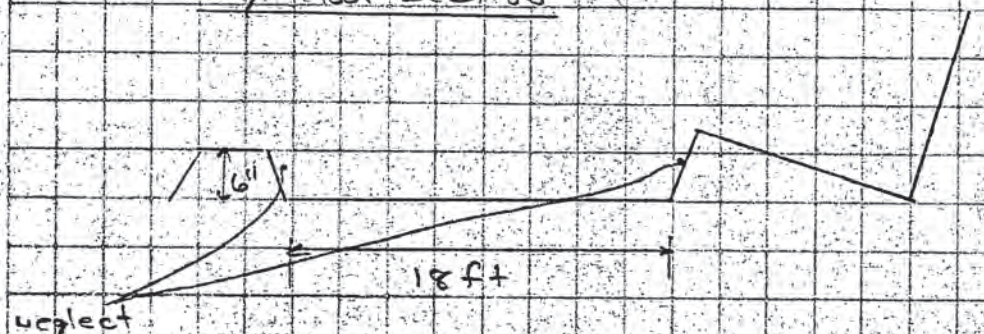
total waste volume (assuming 4 drums/pallet) - from Figure 2

$$31.77 \text{ pallets} \left(\frac{4 \text{ drums}}{\text{pallet}}\right)\left(\frac{55 \text{ gal}}{\text{drum}}\right)$$

$$= 14,940$$

10% = 1,694 gal (req'd containment volume capacity)

bay floor section



available containment capacity $= \left(\frac{6}{12}\right)' \times 18' \times 108 = 972 ft^3 \left(\frac{7.48 \text{ gal}}{ft^3}\right)$

$= 7,270$ gal >> 1,694 gal OK

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PROJECT NO. _____ of _____

PROJECT : PROTECO

CLIENT : _____

SUBJECT : Upgrading CSA - toxics bay

BY J. Medero DATE: 7/11/86

CHKD. J. Medero DATE: 7/17/86

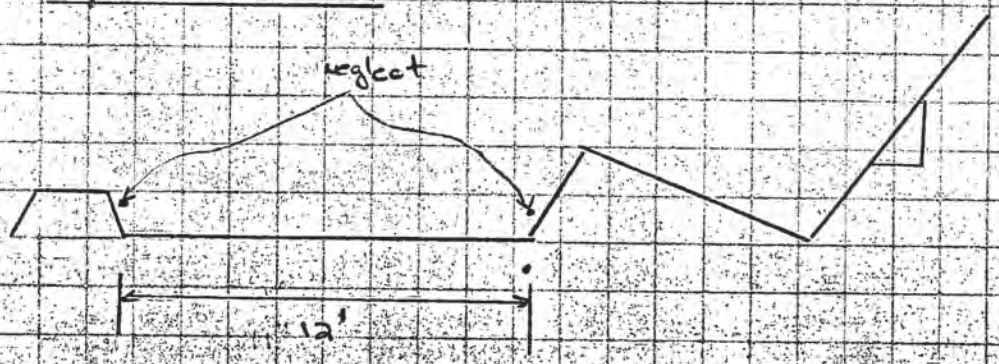
computation of required containment volume (double-stacked drums)

total waste volume (assuming 4 drums/pallet) $= [23 + 10(2)]$ pallets $\left(\frac{4 \text{ drums}}{\text{pallet}}\right)\left(\frac{2 \text{ pallets}}{\text{stack}}\right)\left(\frac{55 \text{ gal}}{\text{drum}}\right)$

$= 18{,}920$ gal

10% = 1,892 gal (req'd containment volume capacity)

bay floor section



available containment capacity $= \left(\frac{6}{12}\right)' \times 12' \times 94' = 564 \text{ ft}^3 \left(7.48 \frac{\text{gal}}{\text{ft}^3}\right)$

$= 4{,}219$ gal $> 1{,}892$ gal OK

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PROJECT NO. _____ of _____

PROJECT: PROTECO

CLIENT: _____

SUBJECT: Upgrading CSA - corrosives bay

BY J. Medero DATE: 7/18/86

CHKD. _____ DATE: _____

computation of req'd containment volume (double-stacked drums)

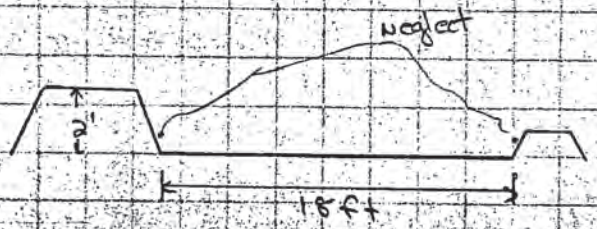
- acids & caustic bays are equal and, therefore, computations for only one bay are presented

total waste volume (assuming 4 drums/pallet) $= (33 \text{ pallets})\left(\frac{4 \text{ drums}}{\text{pallet}}\right)\left(\frac{55 \text{ gal}}{\text{drum}}\right)\left(\frac{2 \text{ pallets}}{\text{stack}}\right)$

$= 14,520$ gal

10% = 1,452 gal (req'd containment volume capacity)

bay floor section



available containment capacity $= \left(\frac{6}{12}\right)' \times 18' \times 52' = 468 \text{ ft}^3 \times \left(\frac{7.48 \text{ gal}}{\text{ft}^3}\right)$

$= 3,501$ gal $>>$ 1,452 gal Ok

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PROJECT NO. _____ of _____

PROJECT: PROTECO

CLIENT: _____

SUBJECT: Upgrading CSA - corrosives bay discharge area (loading dock)

BY J. Medero DATE: 8/1/86

CHKD. J. Medero DATE: _____

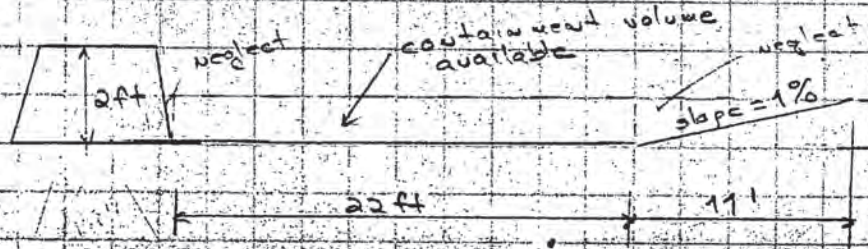
computation of req'd containment volume (60 drums)

$$\text{total waste volume} = 60 \text{ drums} \left(\frac{55 \text{ gal}}{\text{drum}}\right)\left(\frac{1 \text{ ft}^3}{7.48 \text{ gal}}\right)$$

$$= 441.2 \text{ ft}^3$$

$10\% = 44.1 \text{ ft}^3$ (req'd containment volume capacity)

loading dock floor section (20 ft long)



$\frac{x}{11} = \frac{1}{100}$ ∴ $x = 11/100 = 0.11 \text{ ft} = 1.32 \text{ inches}$

available containment volume $= (0.11 \text{ ft}) \times 20' \times 22' = 48.4 \text{ ft}^3 > 44.1 \text{ ft}^3$

OK

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PROJECT NO. _____ of _____

PROJECT: PROTECO

CLIENT: _____

SUBJECT: Upgrading CSA -drum decanting area (N.T.S.)

BY J. Medero DATE: 8/2/86

CHKD. _____ DATE: _____

computation of req'd containement volume capacity

-only one drum will be decanted at a time (w/sloped portion of drum decant area (see Figure 5)

∴ req'd volume capacity = $55\,gal\left(\frac{1\,ft^3}{7.48\,gal}\right) = 7.35\,ft^3$

available volume capacity (see figure 5)

$= \left(\frac{1}{2}\right)(6ft)\left(\frac{3}{12}\right)(10) = 7.5\,ft^3 > 7.35\,ft^3$ OK